This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (CURRENTLY AMENDED) A method for monitoring and optimizing fluid extraction from geological strata comprising:

   modification of a check valve, said check valve including a flap element, such that the modification further comprises the steps of removing the check valve, locating the flap element, attaching a magnet to the flap element, and reinserting the check value, such that the magnetic field is detectable by a flow transducer;

   coupling ~~a~~ the flow transducer to ~~a~~ then check valve operatively coupled to a discharge conduit associated with a walking beam type pumping unit,

   wherein said flow transducer is adapted to generate flow signals by detecting movement of ~~an~~ a sensing element associated with said check valve,

   electromagnetically coupling said flow transducer to a local processing system,

   monitoring said sensing element and said flow signals at least during operation of said walking beam type pumping unit,

   A/D conversion of said flow signals by a ~~and~~ sensing element to create flow signal data;

   accumulating ~~at least~~ a portion of the flow signal data in a memory associated with said local processing system,

   and

   determining an optimum pumping cycle from said accumulated flow signal data, wherein said optimum pumping cycle eliminates fluid pound.

2. (CURRENTLY AMENDED) The method according to claim 1 further including;

transferring ~~at least~~ a portion of said accumulated flow signal data from said local processing system to another processing system, and

outputting said optimized pumping cycle in a format useful for optimizing fluid extraction from said geological strata using said walking beam type pumping unit pump,

3. (PREVIOUSLY AMENDED) The method according to claim 1 further including;

electromagnetically coupling a motor controller associated with said pump to said local processing system,

generating a control signal if a least a portion of said flow signal data that fall outside a predetermined range or predetermined set point, and

sending said control signal to said motor controller;

wherein said motor controller changes an operating state of said pump upon receipt of said control signal.

4. (CURRENTLY AMENDED) The method according to claim 2 further including storing ~~at least~~ a portion of said accumulated flow signal data in a data store associated at least with said another processing system.

5. (PREVIOUSLY AMENDED) The method according to claim 1 wherein said flow transducer generates said flow signal data based at least in part on one of, variable reluctance effects, Hall effects, magnetic inductance effects, binary switch states, potentiometer outputs or piezoelectric effects.

6. (PREVIOUSLY AMENDED) The method according to claim 2 wherein said transferring of said flow signal data is accomplished using an electronic transport medium,

wherein said electronic transport medium comprises one of;

a telecommunications link, a laptop computer, a personal data assistant, or a data logging device.

7. (PREVIOUSLY AMENDED) The method according to claim 3 wherein said operating state includes turning said walking beam type pumping unit, on or off.

8. (ORIGINAL) The method according to claim 3 wherein said predetermined range includes low or loss of fluid flow.

9. (PREVIOUSLY AMENDED) The method according to claim 3 wherein said predetermined set point includes a flow duration in which said walking beam type pumping unit, has been operating or idle.

10. (PREVIOUSLY AMENDED) The method according to claim 1 wherein said position detectable element of said check valve includes means for stimulating said flow transducer to generate said flow signal data coincident with said movement.

11. (CURRENTLY AMENDED) A method for monitoring and optimizing fluid extraction from geological strata comprising:

<u>modification of a check valve, said check valve including a flap element, such that the modification further comprises the steps of removing the check valve, locating the flap element, attaching a magnet to the flap element, and reinserting the check value, such that the magnetic field is detectable by a flow transducer;</u>

coupling a flow transducer to ~~an~~ the inline check valve installed on a discharge conduit associated with a positive displacement walking beam type pumping unit,,

wherein said flow transducer is adapted to generate flow signals by detecting movement of a position detectable element of said check valve and monitoring a sensing element,

A/D conversion of the flow signals by a ~~and~~ ~~the~~ sensing element to create flow signal data;

electromagnetically coupling said flow transducer to a local supervisory control system,

monitoring said flow signal data generated at least during operation of said positive displacement walking beam type pumping unit,

accumulating ~~at least~~ a portion of said flow signal data in a memory associated with said local supervisory control system,

transferring ~~at least~~ a portion of said accumulated flow signal data from said local supervisory control system over a network to a centralized supervisory control system,

determining an optimum pumping cycle from said accumulated flow signal data, and

outputting said optimized pumping cycle in a format useful for optimizing fluid extraction from said geological strata using said positive displacement walking beam type pumping unit,

such that said optimize pumping cycle eliminates fluid pound.

12. (CURRENTLY AMENDED) A system for monitoring and optimizing fluid extraction from geological strata comprising:

a flow transducer coupled to a modified check valve and adapted to generate flow signal data by detection of flow induced movement of a position detectable element internal to said modified check valve,

wherein said modified check valve is operatively coupled to a discharge conduit associated with a positive displacement walking beam type pumping unit;

a local processing system electromagnetically coupled to said flow transducer including;

a first processor;

a first memory coupled to said first processor;

and at least one application operatively stored in ~~at least~~ a portion of said first memory having logical instructions executable by said first processor to at least;

monitor said flow signals generated by said flow transducer at least during operation of said positive displacement walking beam type pumping unit~~;~~

A/D conversion said flow signals to create flow signal data;

accumulate ~~at least~~ a portion of said flow signal data in another portion of said first memory, and

transfer ~~at least~~ a portion of said accumulated flow signal data to an electronic transport medium;

wherein said modification of the check valve, said check valve including a flap element, wherein the modification further comprises the steps of removing the check valve, locating the flap element, attaching a magnet to the flap element, and reinserting the check value, such that the magnetic field is detectable by a flow transducer;

13. (CURRENTLY AMENDED) The system according to claim 12 further comprising;

another processing system including:

a second processor;

a data store coupled to said second processor;

a second memory coupled to said second processor; and

at least another application operatively stored in at least a portion of said second memory having logical instructions executable by said second processor to at least;

receive said accumulated flow signal data from said electronic transport medium,

retrievably store ~~at least~~ a portion of said accumulated flow signal data in said data store,

output said accumulated flow signal data in a format useful for optimizing fluid extraction from said geological strata using said positive displacement walking beam type pumping unit,.

14. (PREVIOUSLY PRESENTED) The system according to claim 13 wherein said electronic transport medium includes one of; a telecommunications link, a laptop computer, a personal data assistant, or a data logging device.

15. (PREVIOUSLY PRESENTED) The system according to claim 12 wherein said flow transducer generates said flow signals based at least in part on one of;

variable reluctance effects, Hall effects, magnetic inductance effects, binary switch states, potentiometer outputs or piezoelectric effects.

16. (PREVIOUSLY AMENDED) The system according to claim 12 wherein said at least one application further includes instructions executable by said fist processor for transmitting a control signal to an electromagnetically coupled motor controller associated with said positive walking beam type pumping unit, if said flow signal data fall outside a predetermined range or predetermined set point.

17. (PREVIOUSLY AMENDED) The system according to claim 16 wherein said control signal causes said motor controller to change an operating state of said positive displacement walking beam type pumping unit.

18. (PREVIOUSLY AMENDED) The system according to claim 17 wherein said operating state includes turning said positive displacement walking beam type pumping unit, on or off.

19. (ORIGINAL) The system according to claim 16 wherein said predetermined range includes low or loss of fluid flow.

20. (PREVIOUSLY AMENDED) The system according to claim 16 wherein said predetermined set point includes a flow duration in which said positive displacement walking beam type pumping unit, has been operating or idle.

21. (CURRENTLY AMENDED) A system for monitoring and optimizing fluid extraction from geological strata comprising:

a flow transducer coupled to a modified check valve including means for generating flow signals by detecting flow induced movement of a position detectable element internal to said modified check valve;

a local processing system electromagnetically coupled to said flow transducer and including means for;

monitoring ~~said~~ a sensing element and said flow signals generated at least during operation of a positive displacement pump inline with said check valve;

A/D conversion said flow signals to create digital flow signals;

accumulating ~~at least~~ a portion of said flow signal data in a memory associated with said local processing system;

transferring ~~at least~~ a portion of said accumulated flow signal data to another processing system;

electromagnetically coupling a motor controller associated with said positive displacement walking beam type pumping unit to said local processing system;

generating a control signal if;

said flow signal data fall outside a predetermined range,

or said flow signal data fall outside a predetermined set point,

or a control command is received from said another processing system; and,

sending said control signal to said motor controller;

wherein said motor controller changes an operating state of said positive displacement walking beam type pumping unit, upon receipt of said control signal,

wherein said predetermined range is set to eliminate fluid pound.

22. (CURRENTLY AMENDED) The system according to claim 21 wherein said another processing system is in processing communications over a network with at least said local processing system and includes means for;

receiving said accumulated flow signal data from said network;

retrievably storing ~~at least~~ a portion of said accumulated digitized flow signals in a data store;

determining an optimum pumping cycle from said accumulated digitized flow signals;

generating said control command;

sending said control command to at least said local processing system; and

outputting said optimum pumping cycle in a format useful for optimizing fluid extraction from said geological strata using said positive displacement walking beam type pumping unit,.

23. (PREVIOUSLY PRESENTED) The system according to claim 22 wherein said network is a wireless telecommunications network.

24. (PREVIOUSLY AMENDED) The system according to claim 21 wherein said position detectable element includes at least one permanent magnet attached thereto and configured to stimulate said flow transducer to generate said flow signal data coincident with flow induced movement of said position detectable element.

25. (PREVIOUSLY AMENDED) The system according to claim 21 wherein said motor controller further includes timer means for turning said positive displacement walking beam type pumping unit, on or off in accordance with a programmed pumping cycle.

26. (PREVIOUSLY PRESENTED) The system according to claim 25 wherein said optimum pumping cycle is used to at least modify said programmed pumping cycle.

27. (ORIGINAL) The system according to claim 25 wherein said programmed pumping cycle is modified manually by an operator.

28. (PREVIOUSLY PRESENTED) The system according to claim 25 wherein said programmed pumping cycle is modified automatically by either said local processing system or said another processing system.

29. (PREVIOUSLY PRESENTED) The system according to claim 22 wherein said another processing system further includes means for heuristically determining said optimum pumping cycle.

30. (PREVIOUSLY PRESENTED) The system according to claim 21 where said transferring occurs automatically based at least in part on one of; time, in response to a transfer request or in response to an event.

31. (PREVIOUSLY PRESENTED) The system according to claim 21 wherein said control command is generated based at least in part on one of: time or in response to an event.

32-34. (WITHDRAWN)

35. (CURRENTLY AMENDED) A method for monitoring and optimizing fluid extraction from geological strata comprising:

modifying a flap valve, said check valve including a flap element, such that the modification further comprises the steps of removing the flap valve, locating the flap element, attaching a magnet to the flap element, and reinserting the flap value, such that the magnetic field is detectable by a flow transducer;

coupling ~~a~~ the flow transducer to ~~a~~ the flap valve operatively coupled to a discharge conduit associated with a positive displacement walking beam type pumping unit, wherein said flow transducer is adapted to generate flow signals by detecting movement of a position detectable sensing element internal to said flap valve,

electromagnetically coupling said flow transducer to a local supervisory control system,

monitoring said sensing element and said flow signals at least during operation of said positive displacement walking beam type pumping unit,

A/D conversion said flow signals and monitoring said sensing element to create digital flow data;

accumulating ~~at least~~ a portion of said flow signal data in a memory associated with said local supervisory control system, and

determining an optimum pumping cycle from said accumulated flow signals,

wherein said optimum pumping cycle eliminates fluid pound.

36. (CURRENTLY AMENDED) The method according to claim 35 further including;

transferring ~~at least~~ a portion of said accumulated flow signal data from said local supervisory control system to a centralized supervisory control processing system,

and outputting said optimum pumping cycle in a format useful for optimizing fluid extraction from said geological strata using said positive displacement walking beam type pumping unit.

37. (CURRENTLY AMENDED) A system for monitoring and optimizing fluid extraction from geological strata comprising:

modification of a flap valve, said flap valve including a flap element, such that the modification further comprises the steps of removing the flap valve, locating the flap element, attaching a magnet to the flap element, and reinserting the flap value, such that the magnetic field is detectable by a flow transducer;

a flow transducer coupled to ~~a~~ the flap valve wherein said flap valve includes a magnetic element disposed on a moveable flap which generates flow signals detectable by said flow transducer as a function of fluid flow through said flap valve;

a local supervisory control system electromagnetically coupled to said flow transducer and including means for;

monitoring ~~said~~ a sensing element and said flow signals generated at least during operation of a positive displacement walking beam type pumping unit, inline with said flap valve;

A/D converting said flow signals by the ~~and~~ sensing element to produce digital flow data;

accumulating at least a portion of said flow signal data in a memory associated with said local supervisory control system;

transferring at least a portion of said accumulated flow signal data over a network to a centralized supervisory control system;

electromagnetically coupling a motor controller associated with said positive displacement pump to said local supervisory control system;

generating a control signal if one or more of the following conditions are detected;

said flow signal data fall outside a predetermined range, or

said flow signal data fall outside a predetermined set point, or

a control command is received from said centralized supervisory control system;

sending said control signal to said motor controller;

wherein said motor controller changes an operating state of said positive displacement walking beam type pumping unit, upon receipt of said control signal,

and wherein said predetermined range is set to eliminate fluid pound.

38. (CURRENTLY AMENDED) The system according to claim 37 wherein said centralized supervisory control system is in processing communications over said network with at least said local supervisory control system and includes means for;

receiving said accumulated flow signal data from said network;

retrievably storing ~~at least~~ a portion of said accumulated flow signals in a data store;

determining an optimum pumping cycle from said accumulated flow signals;

generating said control command;

sending said control command to at least said local supervisory control system; and

outputting said optimum pumping cycle in a format useful for optimizing fluid extraction from said geological strata using said positive displacement walking beam type pumping unit,.